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A METHODOLOGICAL PERSPECTIVE TO ENHANCE BASKETBALL PLAYERS' PHYSICAL EDUCATION

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ABSTRACT

It is via the design of the tasks that students are subjected to physical and physiological demands that their physical fitness is determined by the teacher's technique in Physical Education classes. As a way to examine the impact of three distinct teaching approaches on students' basketball skills, this study compared the external and internal loads (eTL and iTL) of the Tactical Games Approach (TGA), Direct Instruction (DI) and Service Teacher's Basketball Unit (STBU) (STBU). Researchers also looked at the ratings of perceived exertion (RPE) from the evaluations (before and after). A total of 49 kids, ranging in age from 11 to 12, from a state school in Spain's sixth grade participated in the study. Students were divided into groups and given teaching–learning packages at random. Inertial devices were used to capture physical activity and transform it into kinematic characteristics for each session. Students who used the TGA approach had greater eTL (player load; DI = 4.92, TGA = 6.95, STBU = 2.99) and iTL (internal load) readings during the sessions. During the evaluations, their heart rates were comparable to those of students in other programmes. They also passed. High-intensity exercise, such as running (DI = 3.42, TGA = 11.26, STBU = 8.32) and sprinting (DI= 0.00, TGA=0.12, STBU=0.11), was more prevalent in their daily routines, despite the fact that they were less physically fit. Students with little prior basketball experience had greater peak speeds, whereas more experienced players had higher heart rates throughout the evaluations. Because it favours primary school children' physical health and well-being, the TGA technique is frequently cited in the design of Physical Education lessons.

I. Introduction

Concern over the health of young people has increased in the previous decade as a result of a drop in physical activity and an increase in the use of new technology. Following an investigation into how the present epidemic of COVID-19 has impacted adolescents' sedentary

behaviour and emotional imbalance, this issue has grown. Children and adolescents are predicted to become the primary non-transmittable illness and a major public health issue in the next decade by a group of experts from the World Obesity Federation (WOF) (Klochko, et al. 2020). As a result, school-age children should get 60 minutes of physical activity each day, but it's not only how long they exercise that matters; it's also how hard they work. It's a cause for worry that only roughly 10 to 15 percent of class time—or about five minutes—is devoted to intensive physical exercise in Physical Education classes (Bouteraa, et al. 2020). Accordingly, Physical Education is a topic of considerable importance in this context since it has the ability to foster healthy habits and behaviours, which is a crucial part of an integrated education because of the values and attitudes implicitly worked on. Physical education is an essential part of a child's education since it promotes both physical and mental well-being. To ensure that students' physical fitness is maximised, the teacher's preparation and methods in the classroom must be carefully considered. Sports like basketball, which involve both low- and high-intensity movements, might boost physical activity levels, according to the (Rudd, et al. 2021). Additionally, it enables several players to engage simultaneously and in the same location, fostering interpersonal relationships and motor development. The development of students' physical abilities is one of the key goals of this topic, thus these materials provide an intriguing proposition for inclusion in instructors' programming.

II. Literature Review

Research shows that certain teaching methods are more effective in sports learning than others. There are two main ways to teaching physical education that are used by the teacher: the TCA, which is based on more conventional methods, and the SCA, which was developed as an alternative. The Direct Instruction approach is most common in TCA, whereas the Tactical Games Approach is most prominent in SCA. Individual practise in repeating exercises is used to build technical competence while employing the TCA technique. As a result, students have minimal strain on their motor and cognitive systems while completing these assignments. There is a progression towards increasingly difficult game circumstances when pupils are considered to have mastered the method. Prescriptive feedback is used by the instructor to remedy errors in this paradigm. The SCA approach, on the other hand, encourages students to make decisions based on game circumstances that are as contextualised and stimulating as feasible, therefore promoting students' decision-making (Guimarães, et al. 2019). Teachers employ interrogative feedback and small-sided games (SSGs) as a way to help students build decision-making and tactical awareness. Student engagement and participation are increased by this method, which

helps them better grasp the game's mechanics and make better tactical decisions. Students' physical abilities are shaped by the teacher's approach, which is related with a differentiated reaction to the supported weight. A greater heart rate induced by the SCA method helps students improve their cardiorespiratory abilities. Invasive sports, in particular, may help kids enhance their physical talents and motor skills, and are most successful when used in conjunction with this method. Basketball assignments in Physical Education should thus be designed to give students with high-intensity interventions, where at least 50% of the time is spent conducting moderate to strenuous physical activity (MVPA). Students' physical activity levels are low because to a lack of time for motor practise in the TCA, which is still the most often employed method. (Bouteraa, et al. 2020) came to this conclusion after observing significant disparities in student learning and teacher effectiveness as a result of the necessity for instructors to update their techniques. But in order to implement this new strategy, instructors and trainers must be constantly re-educated.

III. Materials and Methods

Design

The current work used a quasi-experimental and longitudinal manipulation method. The physical and physiological demands reported by students following the implementation of three intervention programmes based on diverse techniques, for teaching high school basketball, were studied using a pre- and post-test methodology.

Sample

The study involved 55 kids between the ages of 11 and 12 from the sixth grade of basic education. They were split up among three separate but equally diverse teams (6A, 6B and 6C). Spain's centre and western regions were the focus of the inquiry. Teaching and learning programmes were allocated to the groups at random (Halaidiuk, et al. 2018). A total of 18 students from 6A, 19 students from 6B, and 18 students from the STBU were involved in Direct Instruction (DI), Tactical Game Approach (TGA), and the Service Teacher's Basketball Unit (STBU), which was designed and taught by the Physical Education teacher without an explicit teaching model being used (Phelps, et al. 2021). Participation in at least 80% of the practical treatments (sessions and pre/post-test evaluations) was a requirement for all participants in the research. After the six participants who died during the experiment were removed from the sample, the final sample size was 49 (Koekoek et al. 2018). Prior to this year, the pupils had never been exposed to the invading sport of basketball in their Physical Education lessons.

Basketball was practised by 44 percent of students from the DI intervention, 52.6 percent of students from the TGA intervention, and 27.8 percent of students from the STBU programme for two hours a week outside of school. Figure 1 depicts the process of determining the appropriate sample size.

IV. Results

All eTL variables except sprints percent, Nsprints, Nsteps, Njumps, and Nimpacts indicate significant differences. The findings are consistent with those of the previous sessions, with the exception of the acc/dec. For iTL, significant differences were only found in the region of 90–95 percent HR between methods STBU and DI (DI = 21.48, TGA = 25.33, STBU = 27.44), but not in any other range. The HR values obtained using the TGA technique were not higher (Shuba, Chukhlantseva, & Shuba, 2018). They also spent more time engaging in high-intensity activities including running (DI 3.42, TGA 11.26, STBU 8.32), sprinting (DI 0.00, TGA 0.12, STBU 0.11) and jogging (DI 0.00, TGA 0.12, STBU 0.11). Dis/m, Nacc, Ndec, Nsteps, Nimpacts, and PL all exhibit medium variations (E2R 0.26) in the amount of the effect.

V. Discussion

In the scientific literature, it has been shown that varied workloads imposed by PE teachers in their classes affect students' physical abilities (Koekoek et al. 2018). Thus, the goal of this study was to measure and compare eTL, iTL, and RPE following the administration of three distinct intervention programmes in school basketball, one of which was devised and conducted by an in-service teacher. Using the TGA style of teaching, the results showed that pupils who got the TGB programme fared better than those who did not (García-Castejón, et al. 2021). Their eTL (player load; DI = 4.92, TGA = 6.95, STBU = 2.99) and iTL (mean heart rate; DI = 142.94, TGA = 157.12, STBU = 143.98) values were significantly greater throughout the training sessions. Their pulse rates throughout the assessment tests were comparable to those of the students in the other programmes. Running (DI=3.42, TGA=11.26, STBU=8.32), and sprinting speed ranges (DI =0.00, TGA =0.12, STBU =0.11) took up the majority of their high-intensity exercise time. The findings of the assessments demonstrate that the students' RPE was unaffected by experience or intervention programmes ($p > 0.05$). There was, however, an improvement in the RPE of the three class groups as a result of the intervention (post-test).

VI. Conclusions

In comparison to DI and STBU, the TGA approach generated more eTL and iTL requests than the other programmes tested here. Furthermore, they resembled the results of live play more closely.

While the experience variable found few significant changes, the TGA method's advances in physical and physiological demands were not dependent on it, there was a strong correlation with the teaching approach employed (Østergaard, 2018). Thereby, the significance of instructors' work-flow management is demonstrated, as it allows them to meet their specified goals while also meeting the physiological needs of their pupils, thereby increasing their physical aptitude and increasing the physical and physiological demands of class practise (Østergaard, 2018). As a result, student-centred techniques like as the TGA method are highly recommended.

Practical Application

Students' physical and physiological needs are examined in this study, which provides significant data for Physical Education teachers. A larger eTL and iTL may be achieved using the TGA technique for teaching basketball in the school environment (Halaidiuk, et al. 2018). As a result, teachers should keep this strategy in mind while designing their daily schedules in order to help students grow to their full potential.

In addition to providing useful information for educators and coaches, the results show that this approach to student and beginner player training has a number of other advantages that can't be overlooked.

Strengths and Limitations

Only two studies have looked into how intervention programmes based on various teaching methods affect the workload of primary school pupils (Phelps, et al. 2021). An in-service physical education instructor is an essential figure in teaching and learning, and this study utilises their preparation and intervention to enhance this line of research. It's also a good way to get a sense of how a teacher views their sports education.

These findings were drawn from a very small sample with unique features, which are among the study's limitations. As a result, further research is needed to enlarge the study's sample size and change the subject's demographics in order to better regulate the experiment. Increasing the number of programmes developed and delivered by in-service teachers is also required, as the involvement of teachers is critical to the ongoing promotion of research in schools.

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